Optimal Generation Mix Considering Demand Response and Energy Storage Technologies

The demand response and energy storage technologies utilization are among the important issues in the future smart grids. Many countries around the world decided to increase the penetration level of renewable energy resources in their power grids resulting in problems to the power system operation by decreasing the flexibility.

This paper proposes a new generation mix determination (GMD) method by including both of demand response and energy storage systems to provide more flexibility to the power systems. The simulation results show the effectiveness of the proposed method in determining the generation mix of the future power system with high penetration level of wind energy plants.

Keywords:
optimal generation mix, demand response, energy storage; smart grid, renewable energy resource

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